CLAIMS

1. A hearing aid comprising:

a first input signal channel adapted to generate a first input signal associated with a first microphone,

a second input signal channel adapted to generate a second input signal associated with a second microphone, and

a processor adapted to:

determine a difference in average signal level between the first and second input signals,

integrate the difference in average signal level over time to determine a differential level value and compare the differential level value to a threshold value,

adjust a correction parameter value of at least one input signal channel based on the result of said comparison to reduce the difference in average signal level between the first and second input signals.

2. A hearing aid according to claim 1, wherein the correction parameter comprises a gain correction factor and/or a filter parameter controlling a frequency response of the at least one input signal channel.

3. A hearing aid according to claim 1, wherein the adjustment of the correction parameter is performed before the difference in average signal level is determined,

thereby applying feedback correction of detected differences in the integrated average signal level between the input signal channels.

4. A hearing aid according to claim 1, wherein the adjustment of the correction parameter value comprises:

retaining a current correction parameter value if the differential level value is smaller than the threshold value, and

incrementing or decrementing the current correction parameter value if the differential level value is larger than the threshold value according to a sign of the differential level value.

5. A hearing aid according to claim 4, wherein the increment or decrement of the current correction parameter value is obtained in a step of predetermined size.

6. A hearing aid according to claim 5, wherein the predetermined step size is considerably smaller than the threshold value's numerical value.

7. A hearing aid according to claim 1, wherein the processor is further adapted to:

reset the differential level value after the threshold value has been reached.

8. A hearing aid according to claim 7, wherein the integration of the difference in average signal level is performed by a non-leaky integrator.

9. A hearing aid according to claim 1, wherein the processor is further adapted to:

calculate a spectral estimate of a first signal,

compare the spectral estimate of the first signal to a predetermined criteria to control the adjustment of the correction parameter value.

10. A hearing aid according to claim 1, wherein signal levels of the first and second input signals are determined from respective absolute amplitude estimates or power estimates of the first and second input signals.

11. A hearing aid according to claim 1, wherein the first and second input signals channels comprise respective analogue-to-digital converters providing the first and second input signals as respective digital signals, and

the processor comprises a Digital Signal Processor adapted to receive and process the respective digital signals to generate the directional signal.

12. A hearing aid according to claim 11, wherein operations of the Digital Signal Processor are controlled by a predetermined set of instructions stored in a Random Access Memory of the hearing aid.

13. A hearing aid comprising:

a first input signal channel adapted to generate a first input signal associated with a first microphone,

a second input signal channel adapted to generate a second input signal associated with a second microphone, and

a processor adapted to:

determine a difference in average signal level between the first and second input signals,

calculate a spectral estimate of a first signal,

integrate the difference in average signal level over time to determine a differential level value;

adjust a correction parameter value of at least one input signal channel based on the differential level value to reduce the difference in average signal level between the first and second input signals, characterised in that

the spectral estimate is compared to a predetermined criteria to control the adjustment of the correction parameter value.

14. A hearing aid according to claim 13, wherein the adjustment of the correction parameter value is suspended when the spectral estimate fails to fulfil the predetermined criteria.

15. A hearing aid according to claim 13 or 14, wherein the predetermined criteria is based on minimum and maximum values of the spectral estimate.

16. A hearing aid according to 13, wherein the first signal is the first or the second input signal or a signal derived from a combination of the first and the second input signal.

17. A hearing aid according to claim 13, wherein the adjustment of the correction parameter value is performed in one step that substantially eliminates the determined difference in average signal level between the first and second input signals.

18. A hearing aid according to claim 13, wherein the adjustment of the correction parameter value comprises:

comparing the differential level value to a threshold value,

retaining the correction parameter value when the numerical value of the differential level is smaller than the threshold value, and

incrementing or decrementing the correction parameter value when the numerical value of the differential level is larger than the threshold value according to a sign of the differential level value.

19. A hearing aid according to claim 13, wherein the correction parameter comprises a gain correction factor and/or a filter parameter controlling a frequency response of the at least one input signal channel.

20. A hearing aid comprising:

a first input signal channel adapted to generate a first input signal associated with a first microphone,

a second input signal channel adapted to generate a second input signal associated with a second microphone, and

a processor adapted to:

determine a difference in average signal level between the first and second input signals,

compare the difference in average signal level to a threshold value,

integrate the difference in average signal level over time when the difference in average signal level is smaller than the threshold value to determine a differential level value,

suspend the integration of the difference in average signal level when the difference in average signal level is larger than the threshold value,

adjust a correction parameter value of at least one input signal channel based on the differential level value to reduce the difference in average signal level between the first and second input signals.

21. A hearing aid according to claim 20, wherein the processor is further adapted to :

compare the differential level value to a second threshold value,

retain a current correction parameter value if the differential level value is smaller than the second threshold value,

increment or decrement the current correction parameter value if the differential level value is larger than the second threshold value based on a sign of the differential level value.

22. A method of adaptively balancing input signal channels of a hearing aid, the method comprising the steps of:

providing a first input signal in a first input signal channel associated with a first microphone,

providing a second input signal in a second input signal channel associated with a second microphone,

determining a difference in average signal level between the first and second input signals,

integrating the difference in average signal level over time to determine a differential level value,

comparing the differential level value to a threshold value,

adjusting a correction parameter value of at least one input signal channel based on the result of said comparison to reduce the difference in average signal level between the first and second input signals.

23. A method according to claim 22, further comprising the step of:

retaining a current value of the correction parameter if the differential level value is smaller than the threshold value, and

incrementing or decrementing the current correction parameter value if the differential level value is larger than the threshold value according to a sign of the differential level value.

24. A method of adaptively balancing input signal channels of a hearing aid, the method comprising the steps of:

providing a first input signal in a first input signal channel associated with a first microphone,

providing a second input signal in a second input signal channel associated with a second microphone,

calculating a spectral estimate of a first signal,

determining a difference in average signal level between the first and second input signals,

integrating the difference in average signal level over time to determine a differential level value;

adjust a correction parameter value of at least one input signal channel based on the differential level value to reduce the difference in average signal level between the first and second input signals, characterised in that

the spectral estimate is compared to a predetermined criteria to control the adjustment of the correction parameter value.

25. A method according to claim 24, comprising the further steps of:

suspending the adjustment of the correction parameter value when the spectral estimate fails to fulfil the predetermined criteria.

26. A method of adaptively balancing input signal channels of a hearing aid, the method comprising the steps of:

providing a first input signal in a first input signal channel associated with a first microphone,

providing a second input signal in a second input signal channel associated with a second microphone,

determining a difference in average signal level between the first and second input signals,

comparing the difference in average signal level to a threshold value,

integrating the difference in average signal level over time when the difference in average signal level is smaller than the threshold value to determine a differential level value,

suspending the integration of the difference in average signal level when the difference in average signal level is larger than the threshold value,

adjusting a correction parameter value of at least one input signal channel based on the differential level value to reduce the difference in average signal level between the first and second input signals.